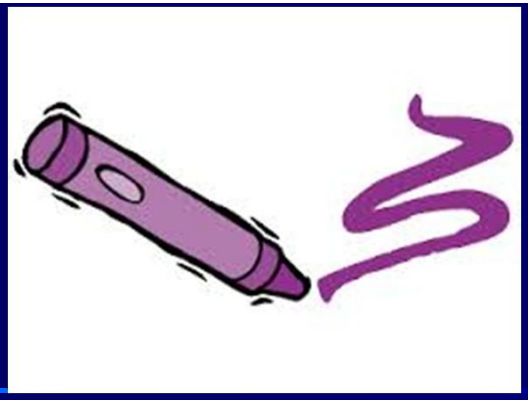

بسم الله الرحمن الرحيم

Altered Mental State

Presented by:

Dr. MARWA M. REDA

Assistant professor of internal medicine, PNU



Agenda

- Introduction
- Overview the definition of “altered mental status”
- Develop reasonable differential diagnosis for acute mental status changes
- Explain first steps in diagnosis and management of common causes of mental status changes

Definition

?

- Mental status is composed of two parts:
- –Arousal: wakefulness, responsiveness
- –Awareness: perception of environment

- Delirium (which we see a lot)
- –Transient, usually reversible decreased attention span and waning confusion

Definition

?

- Altered mental status (AMS) denotes :
- an undifferentiated group of disorders of mentation, characterised by impaired cognition, attention, awareness or level of consciousness. Patients with acute non-traumatic causes of AMS make up 5% of all patients presenting to emergency departments (ED), with higher rates (20–25%) among elderly and poisoned patients.

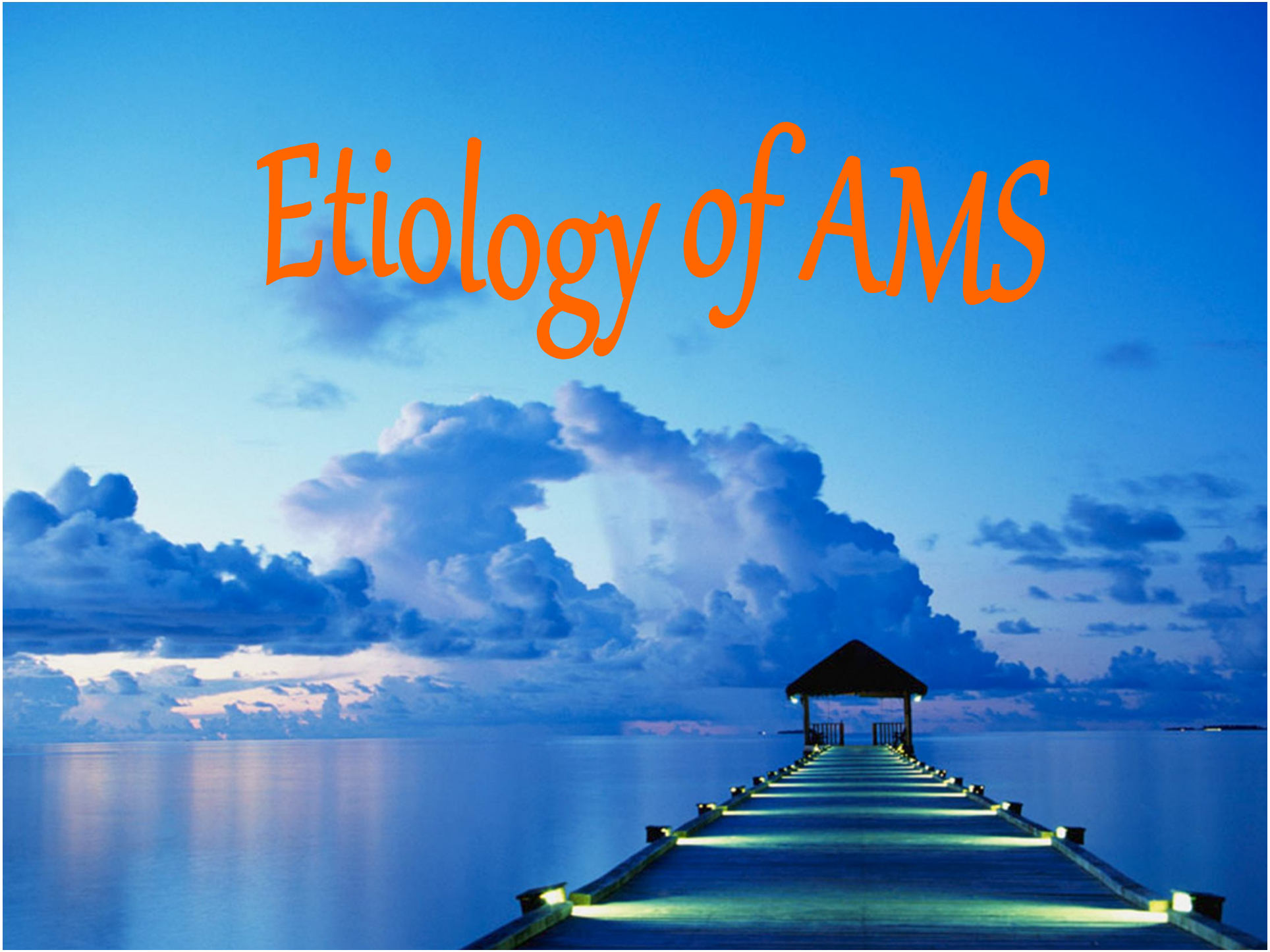
Introduction

- **Altered mental status (AMS)** is a complex “condition” with multiple symptoms that can be described as different behaviors or “abnormal responses to normal events.”

- Many times this presentation seems to be a puzzle that is missing a few pieces, and providers must solve the puzzle under all the usual time constraints.

Introduction

- **Mental Status Examination**
- Appearance
- Attitude toward the examiner
- Mood
- Affect
- Speech
- Thought (process, content)
- Insight, judgment, reliability


Etiology of AMS

Etiology of AMS

- Currently, most emergency medicine literature focuses on the AMS subgroup such as comatose patients, whose coma state may have triggered AMS. Generally, the etiology of emergency AMS is categorized into two factors: primary **nervous system** and **non-neurological factors.**

pneumonic AEIOU TIPS

One method commonly utilized to remember the causes of AMS is the **pneumonic AEIOU TIPS.**

A Alcohol abuse

E Epilepsy, electrolyte, endocrine, encephalopathy

I Insulin, intoxication

O Overdose (opiates, lead, sedatives, aspirin, carbon monoxide)

U Uremia (kidney failure) and other metabolic causes

pneumonic AEIOU TIPS

T Trauma, tumor

I Infection (encephalitis, meningitis, Reye's syndrome, sepsis)

P Poisoning, psychological (hysterical, psuedoseizures)

S Shock, sickle cell, subarachnoid hemorrhage, space occupying lesion

- **M: Metabolic—B12 or thiamine deficiency, serotonin syndrome**
- **O: Hypoxemia (pulmonary, cardiac, anemia); high CO2**
- **V: Vascular causes—hypertensive emergency, ischemic/hemorrhagic CVA, vasculitis, MI**
- **E: Electrolytes and endocrine**
- **S: Seizures / status epilepticus, post-ictal**
- **T: Tumor, trauma, temperature, toxins (lead, mercury, CO, toxidromes)**
- **U: Uremia. Renal or hepatic dysfuction with hepatic encephalopathy**
- **P: Psychiatric, porphyria**
- **I: Infection (inflammatory-see vasculitis above)**
- **D: Drugs, including withdrawal (anticholinergics, TCA;s, SSRI's, BZD's, barbiturates, alcohol)**

Move stupid


Initial assessment

Initial assessment (ABC

AMS patients in particular need a systematic physical exam to help identify the underlying cause of the altered mental status.

- **Airway:**

The first step of any initial assessment is to assess the patient's airway for patency. Ensure that the patient can maintain his airway either on his own or by using an airway adjunct, such as an oropharygeal airway (OPA).

Initial assessment

- **Breathing:**

Determine whether the patient is breathing and the adequacy of her breathing. Is breathing in a regular pattern or in an irregular pattern? Different patterns of breathing may indicate different causes of the AMS.

- Apneustic respirations.
- Biot's (ataxic) respirations
- Cheyne-Stokes respirations
- Kussmaul's respirations

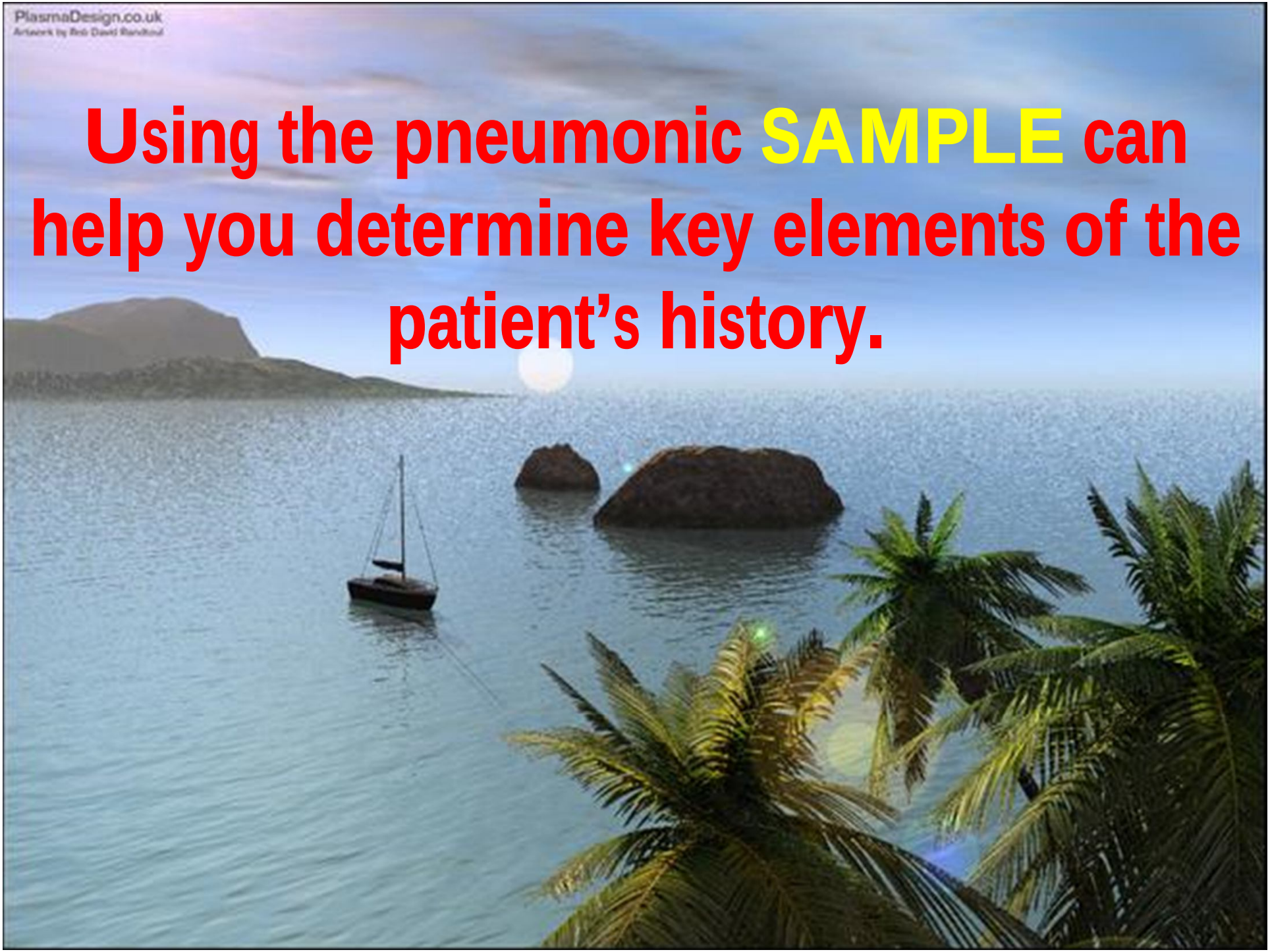
Initial assessment

- **Circulation and skin condition:**
  - Is the pulse present in the extremities or only centrally? Is it rapid, slow or irregular?
  - notice whether the patient is warm, hot or cold. Hot skin may indicate conditions such as sepsis or generalized infection, whereas cooler skin may indicate decreased cardiac output.
  - Pale or cyanotic skin may indicate a respiratory factor in the patient's condition.

Mental status

An important part of the initial assessment is determining a baseline mental status by utilizing the **pneumonic AVPU**.

- Is the patient **a**lert?
- Is the patient responsive to **v**erbal stimulus?
- Does the patient respond only to **p**ainful stimuli?
- Is the patient **u**nresponsive?


PlasmaDesign.co.uk
Artwork by Rob David Randhoul
Using the pneumonic SAMPLE can help you determine key elements of the patient's history.

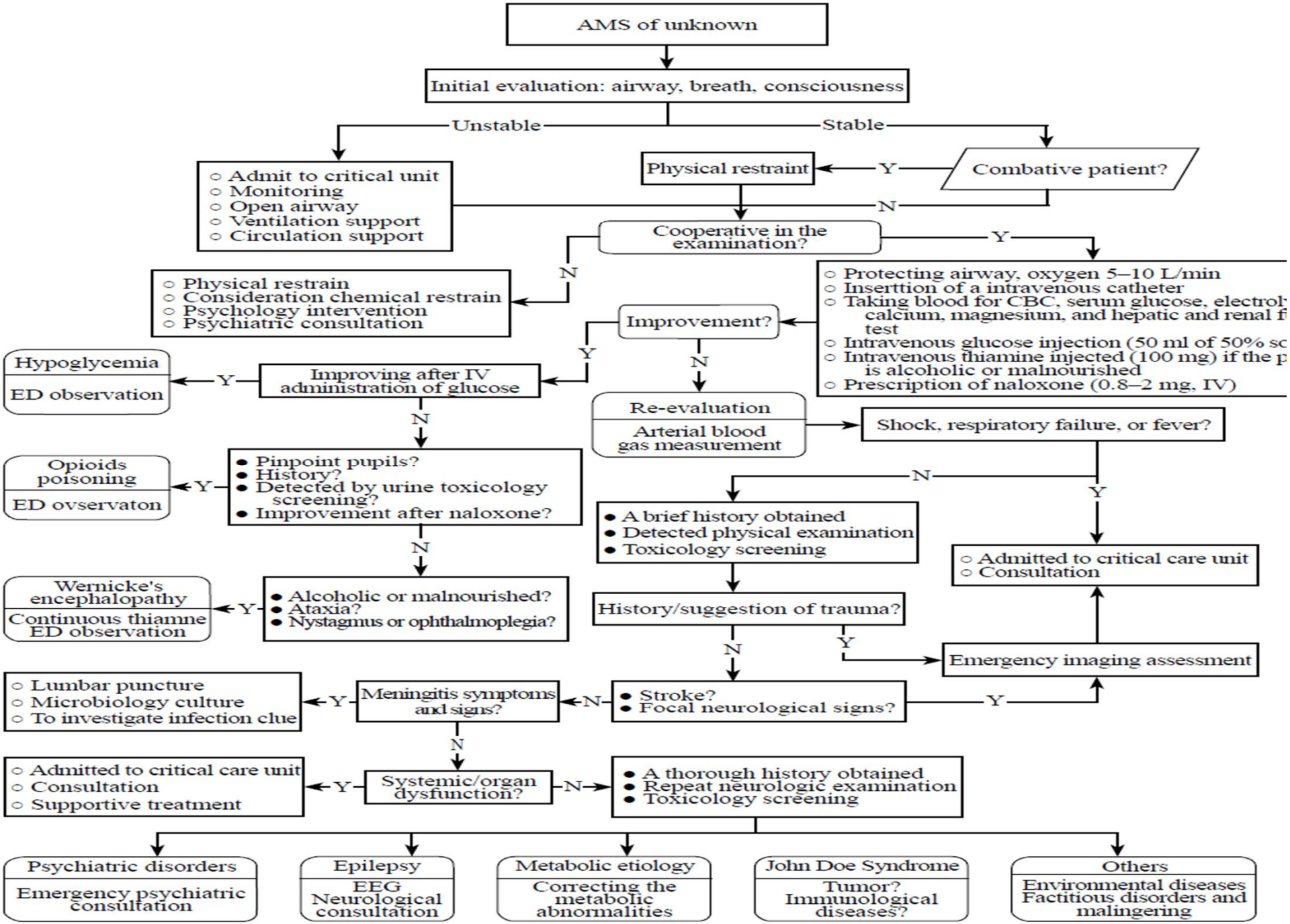
SAMPLE

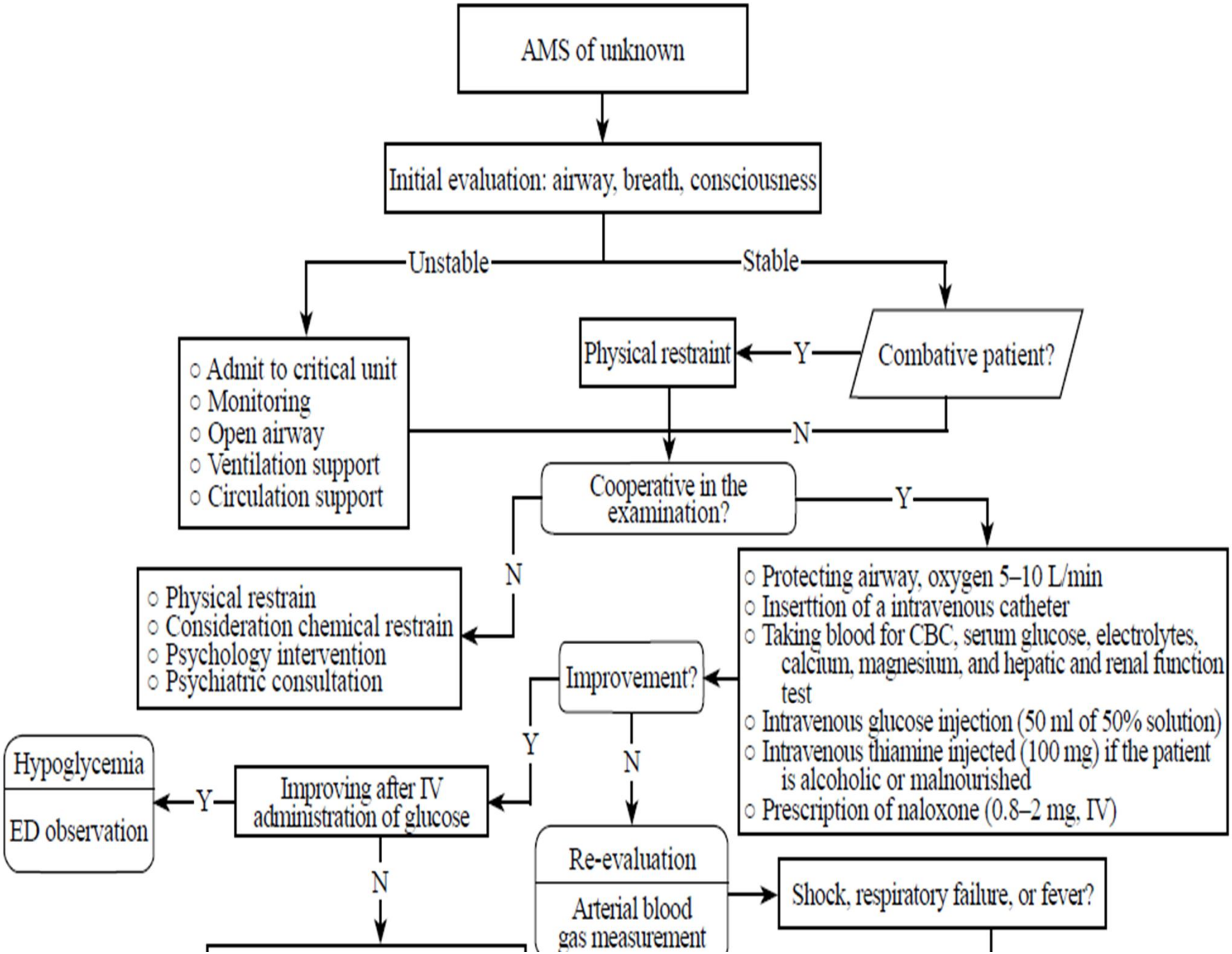
- **S** Signs/symptoms
- **A** Allergies
- **M** Medications
- **P** Past medical history
- **L** Last oral intake
- **E** Events leading up to incident

So you are called for MS Δ's...

- What are the vital signs?
- What was the time course?
- What is the patient's baseline?
- What medications have they received?
- What is the patient's past medical history?
- Was there any trauma?
- Is there any focality to the neuro exam?


Management of AMS


AMS of unknown
Initial evaluation: airway, breath, consciousness
Unstable
Stable
○ Admit to critical unit
○ Monitoring
○ Open airway
○ Ventilation support
○ Circulation support
Physical restraint
Y
Combative patient?
N
Cooperative in the examination?
Y
N
○ Physical restrain
○ Consideration chemical restrain
○ Psychology intervention
○ Psychiatric consultation
Improvement?
○ Protecting airway, oxygen 5–10 L/min
○ Inserttion of a intravenous catheter
○ Taking blood for CBC, serum glucose, electrol
calcium, magnesium, and hepatic and renal f
test
○ Intravenous glucose injection (50 ml of 50% sc
○ Intravenous thiamine injected (100 mg) if the p
is alcoholic or malnourished
○ Prescription of naloxone (0.8–2 mg, IV)
Y
N
Hypoglycemia
ED observation
Y
Improving after IV administration of glucose
N
Re-evaluation
Arterial blood gas measurement
Shock, respiratory failure, or fever?
Opioids poisoning
ED ovservaton
Y
● Pinpoint pupils?
● History?
● Detected by urine toxicology screening?
● Improvement after naloxone?
N
N
Y
● A brief history obtained
● Detected physical examination
● Toxicology screening
○ Admitted to critical care unit
○ Consultation
Wernicke's encephalopathy
Continuous thiamne
ED observation
Y
● Alcoholic or malnourished?
● Ataxia?
● Nystagmus or ophthalmoplegia?
History/suggestion of trauma?
N
Y
Emergency imaging assessment
○ Lumbar puncture
○ Microbiology culture
○ To investigate infection clue
Y
Meningitis symptoms and signs?
N
● Stroke?
● Focal neurological signs?
Y
N
○ Admitted to critical care unit
○ Consultation
○ Supportive treatment
Y
Systemic/organ dysfunction?
N
● A thorough history obtained
● Repeat neurologic examination
● Toxicology screening
Psychiatric disorders
Emergency psychiatric consultation
Epilepsy
EEG
Neurological consultation
Metabolic etiology
Correcting the metabolic abnormalities
John Doe Syndrome
Tumor?
Immunological diseases?
Others
Environmental diseases
Factitious disorders and malingering


AMS of unknown
Initial evaluation: airway, breath, consciousness
Unstable
Stable
Admit to critical unit
Monitoring
Open airway
Ventilation support
Circulation support
Physical restraint
Y
Combative patient?
N
Cooperative in the examination?
Y
N
Physical restrain
Consideration chemical restrain
Psychology intervention
Psychiatric consultation
Protecting airway, oxygen 5–10 L/min
Inserttion of a intravenous catheter
Taking blood for CBC, serum glucose, electrolytes, calcium, magnesium, and hepatic and renal function test
Intravenous glucose injection (50 ml of 50% solution)
Intravenous thiamine injected (100 mg) if the patient is alcoholic or malnourished
Prescription of naloxone (0.8–2 mg, IV)
Improvement?
Y
N
Hypoglycemia
ED observation
Y
Improving after IV administration of glucose
N
Re-evaluation
Arterial blood gas measurement
Shock, respiratory failure, or fever?

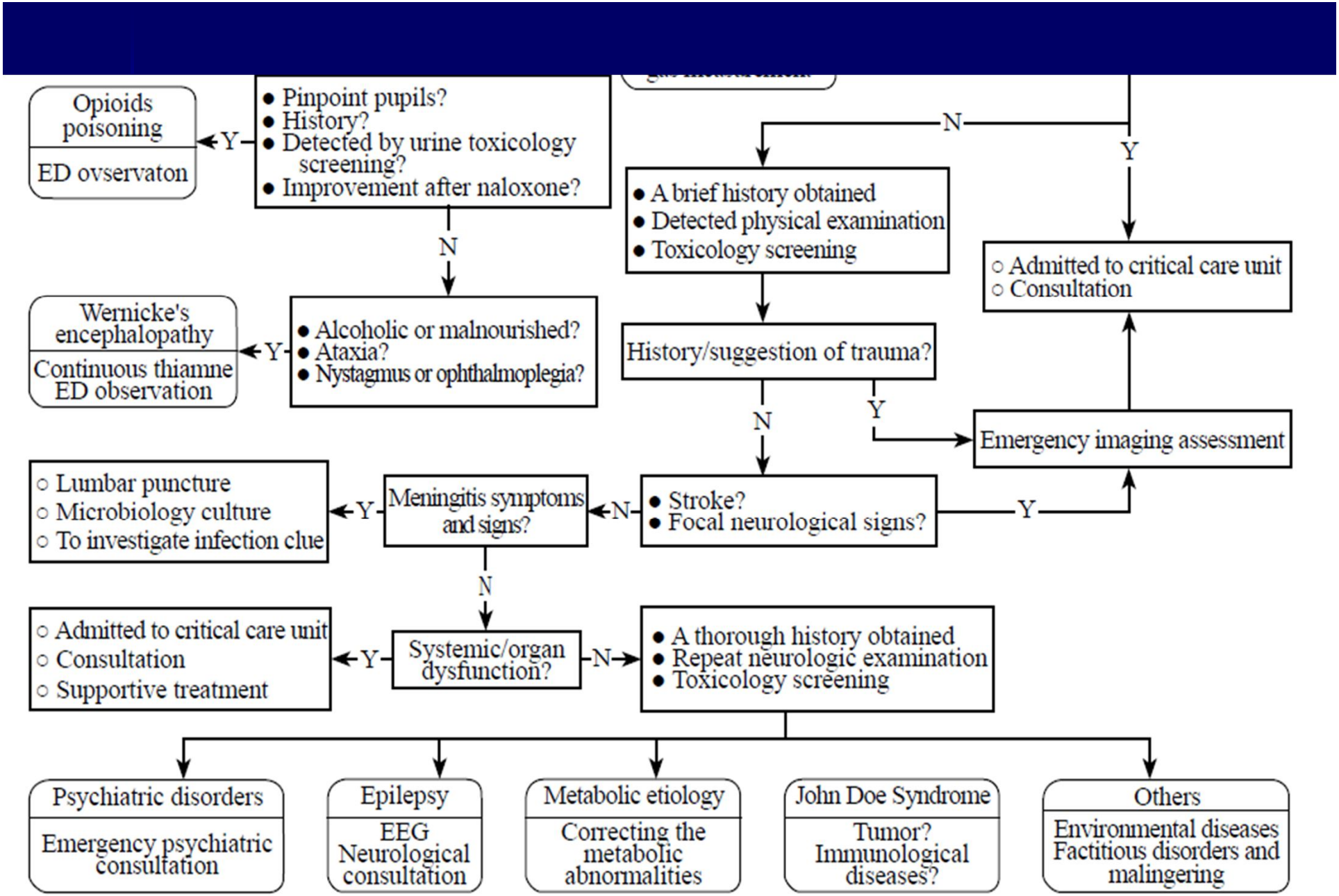


Figure 2. Algorithm for AMS patient assessment and treatment in ED.

CONCLUSION

- Maintain a wide differential
- Get a Grip on the Diagnosis through systematic "clue finding"
- Remember: It's focal in the RAS, or diffuse in the Bilateral Hemispheres
- Re-evaluate patient frequently and do frequent "hypothesis-testing" in your mind.
- Re-Examine the patient and make sure nothing has changed and that the exam is consistent w Dx
- Don't become "emotionally attached" to a Dx, as the clinical picture can change and start looking like something else →

"The only atypical presentation is a typical presentation"


GOOD
LUCK